

REMARKS

Claims 1-3 and 5 are now pending in the application. Claims 4 and 6 are cancelled. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 112

Claim 5 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. This rejection is respectfully traversed.

Claim 5 as amended recites a method comprising: storing a first data block and a second data block following the first data block, for liquid drop discharge; calculating a state transition data block based on the stored first and second data blocks; communicating the state transition data block to an ink-jet head module; converting the state transition data block into the second data block by determining that the second data block is the same as the first data block when the state transition data block has the first value and that the second data block is different from the first data block when the state transition data block has the second value; and discharging liquid drops according to the second data block.

Claim 5 as amended particularly points out and distinctly claims the subject matter which applicant regards as the invention. The Examiner is requested to reconsider and withdraw the rejection.

REJECTION UNDER 35 U.S.C. § 102

Claims 1-3 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Minowa (U.S. Pat. No. 5,543,828). This rejection is respectfully traversed.

Claim 1 as amended recites a liquid drop discharge apparatus comprising an ink-jet head control circuit and an ink-jet head module. The ink-jet head control circuit includes a data conversion unit, which calculates a state transition data block based on the stored first and second data blocks. The data conversion unit outputs the state transition data block as a first value when the first data block is the same as the second data block and as a second value when the first data block is different from the second data block. The ink-jet head module receives the state transition data block from the ink-jet head control circuit. The ink-jet head module includes data storage unit, which stores the first data block. The ink-jet head module includes a data conversion unit, which converts the received state transition data block into the second data block by determining that the second data block is the same as the first data block when the state transition data block has the first value and that the second data block is different from the first data block when the state transition data block has the second value. The ink-jet head module discharges the liquid drops through the plurality of nozzles according to the second data block. Minowa fails to teach or suggest the liquid drop discharge apparatus of claim 1.

In Minowa, a timing control unit controls the timing of thermal element activation. Minowa, Col. 5, lines 5-9. The timing is controlled based on historical or past print data. Minowa, Col. 6, lines 9-29. Minowa is silent however as to an ink-jet head module that receives a state transition data block, that converts the state transition data block to a

converted data block, and that discharges liquid drops according to the converted data block. In other words, while Minowa controls the timing of the thermal element activation based on historical or past print data, the print data itself is still communicated. Minowa, Col. 5, lines 28-31. In the liquid drop discharge apparatus recited by claim 1, the state transition data block is transferred, and the liquid drop discharge data is converted from the state transition data block.

For these reasons, Minowa fails to teach or suggest each and every element of claim 1. Reconsideration and withdrawal of the rejection are respectfully requested. Applicant notes that claims 2 and 3 depend from claim 1, which defines over the prior art as discussed above. Therefore, claims 2 and 3 also define over the prior art. Reconsideration and withdrawal of the rejections is respectfully requested.

Claim 4 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Miyajima et al. (U.S. Pat. No. 6,897,887). This rejection is rendered moot by cancellation. The reference, however, is discussed with regard to the limitations of claim 1 as amended.

Miyajima et al. fails to teach or suggest the liquid drop discharge apparatus of claim 1. In Miyajima et al., a thermal print head is driven based on history pattern data. Miyajima, Abstract. Miyajima et al. is silent however as to an ink-jet head module that receives a state transition data block and that converts the state transition data block to a data block for discharging liquid drops with a data conversion unit.

REJECTION UNDER 35 U.S.C. § 103

Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Minowa (U.S. Pat. No. 5,543,828) in view of Miyajima et al. (U.S. Pat. No. 6,897,887). This rejection is rendered moot by cancellation. The references, however, are discussed with regard to the limitations of claim 1 as amended.

The combination of Minowa and Miyajima et al. fails to teach or suggest the liquid drop discharge apparatus of claim 1. As discussed above, Minowa and Miyajima et al. are each silent as to an ink-jet head module that receives a state transition data block and that converts the state transition data block to a data block for discharging liquid drops with a data conversion unit. Thus, the prior art cited fails to teach or suggest each and every limitation of claim 1.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: March 13, 2006

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